# FREEZEOUT LAKE WMA COLD STORAGE BUILDING

NEAR FAIRFIELD, MONTANA FWP PROJECT #7179102

### SHEET INDEX

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#### CIVIL SITE DESIGN BY:

LARSON CIVIL ENGINEERING, LLC

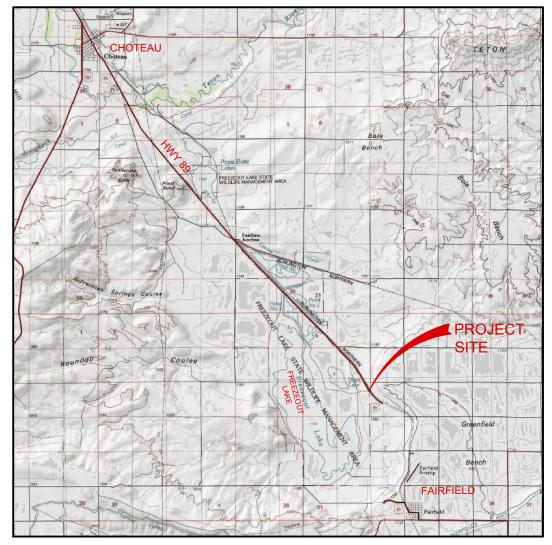
#### **ELECTRICAL DESIGN BY:**

AMES ENGINEERING

#### ARCHITECTURAL REVIEW BY:

SLATE ARCHITECTURE

CODE /	ANALYSIS
CODES:	EXTERIOR WALL PROTECTION: IBC TABLE 602
BUILDING: 2012 INTERNATIONAL BUILDING CODE (IBC) MECHANICAL: 2012 INTERNATIONAL MECHANICAL CODE (IMC) PLUMBING: 2012 UNIFORM PLUMBING CODE (MAPO) ELECTRICAL: 2014 NATIONAL ELECTRICAL CODE (NEC)	NONE REQUIRED  FLAME SPREAD: IBC TABLE 803.9
FIRE: 2012 INTERNATIONAL FIRE CODE ENERGY: 2012 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) ACCESSIBILITY: ANSI 117.1	EXIT ENCLOSURE & PASSAGEWAYS B CORRIDORS B
BUILDING AREA:	CORRIDORS B ROOMS AND ENCLOSED SPACES C
TOTAL BUILDING AREA: 2,400 S.F	AUTOMATIC SPRINKLER SYSTEM: IBC SECTION 903
OCCUPANCY: IBC SECT. 311	NONE
"S-1" OCCUPANCY	EXITS: IBC TABLE 1004.1.1
CONSTRUCTION TYPE: IBC TABLE 601 TYPE V-B	OCCUPANT LOAD: WAREHOUSES: 500 S.F. PER OCCUPANT
PERMITTED: 9,000 SF/FLR (TABLE 503) ACTUAL AREA: 2,400 SF	OCCUPANT LOAD (NEW): [4]
OCCUPANCY SEPARATION: BC TABLE 508.4	EXIT CALCULATION: IBC CH. 10 - TABLE 1015.1
LOCATION ON PROPERTY:	2 EXITS PROVIDED
+30' OPEN SPACE	DISTANCE TO EXITS: IBC SECTION 1016
FIRE RESISTANCE: IBC TABLE 601	200 FT. MAX.; LESS THAN 200 FT. PROVIDED
STRUCTURAL FRAME EXTEROR BEARING WALLS INTERIOR ROMEARING WALLS INTERIOR NOBEARING WALLS INTERIOR NOBEARING WALLS FLOOR CONSTRUCTION ROOF CONSTRUCTION ROOF CONSTRUCTION	ROOF CONSTRUCTION: BC TABLE 1505.1  CLASS C - MINIMUM CLASSIFICATION

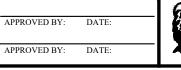


VICINITY MAP



J. LARSON	MARCH 2, 2018
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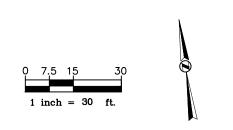
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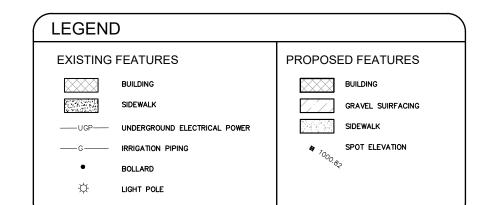
TITLE SHEET FREEZEOUT LAKE WMA COLD STORAGE BUILDING FWP #7179102

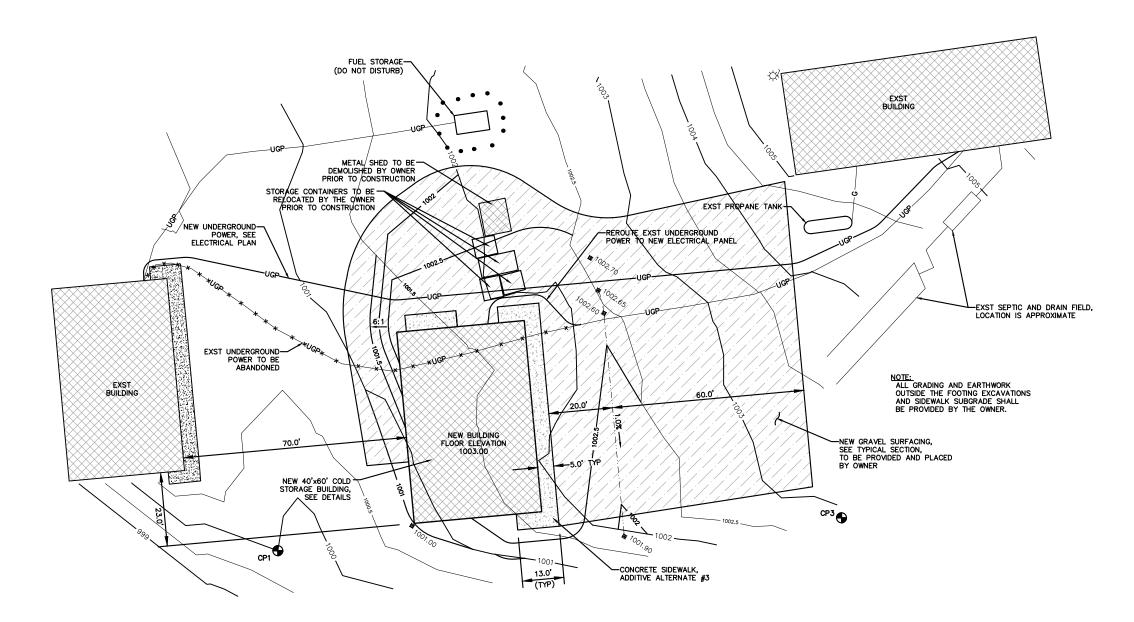


28 ANTLER AVENUE



CP2 ON NORTH SIDE OF ENTRANCE ROAD





	CONTROL POINT TABLE										
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION							
CP1	5,000.00	5,000.00	1,000.00	IRON PIN							
CP2	4,859.44	4,905.73	1,001.01	IRON PIN							
CP3 ●	4,947.37	4,875.45	998.88	IRON PIN							

ASSUMED DATUM

J. LARSON	MARCH 2, 2018
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SITE PLAN

FREEZEOUT LAKE WMA COLD STORAGE BUILDING FWP #7179102



#### **CONSTRUCTION NOTES:**

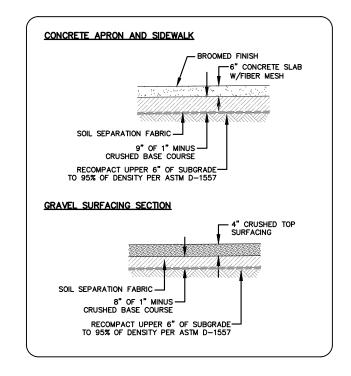
- ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH "MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS", SIXTH EDITION (MPW).
- 2. BEFORE DIGGING, CALL 811 FOR LOCATION OF EXISTING UTILITIES.
- 3. CRUSHED BASE COURSE SHALL BE 1" MINUS PER MPW SPECIFICATIONS.
- CONCRETE SLABS AND SIDEWALK SHALL BE REINFORCED WITH FIBER MESH.
- CRUSHED TOP SURFACING FOR GRAVEL SURFACING SHALL MEET THE FOLLOWING SPECIFICATIONS INCLUDING BINDER OR BLENDING MATERIAL:

% PASSII
100%
40-80%
25-60%
8-20%

IN ADDITION, THE PORTION PASSING THE NO. 200 SIEVE CANNOT EXCEED 2/3 OF THE PORTION PASSING THE #40 SIEVE; THE MAXIMUM LIQUID LIMIT FOR THE MATERIAL PASSING THE NO. 40 SIEVE SHALL NOT EXCEED 35. WHILE THE PLASTICITY INDEX CAN VARY BETWEEN 3 AND 10: THE WEAR FACTOR SHALL NOT EXCEED 50% AT 500 REVOLUTIONS; AND AT LEAST 20% OF THE AGGREGATE RETAINED ON NO. 4 SIEVE SHALL HAVE A FRACTURED FACE.

- CRUSHED TOP SURFACE SHALL BE PLACED AND COMPACTED AS IDENTIFIED IN MPW SPECIFICATION 02/235 CRUSHED BASE COURSE.
- ALL EXCAVATION AND EMBANKMENT ON THIS PROJECT, SHALL MEET THE REQUIREMENTS OF MPW SPECIFICATION 02/230 STREET EXCAVATION, BACKFILL AND COMPACTION.
- CONCRETE SHALL BE M-4000 PER MPW SPECIFICATIONS. ALL REBAR #4 AND LARGER SHALL BE ASTM GRADE 60, #3 REBAR SHALL BE ASTM GRADE 40.
- ALL HOLES DRILLED IN CONCRETE FOR BOLT EMBEDS SHALL BE THOROUGHLY CLEANED OF DUST BY BLOWING OUT THE HOLE WITH AN AIR COMPRESSOR.
- 10. COMPACTION AND CONCRETE TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE MPW SPECIFICATIONS BY AN INDEPENDENT LABORATORY HIRED BY THE CONTRACTOR. SUBMIT RESULT TO BOTH OWNER AND ENGINEER. PROVIDE TESTING AS INDICATED IN THE FOLLOWING SCHEDULE:
  - -ONE TEST EACH FOR SUBGRADE AND GRAVEL AT EACH FOOTING, OR EVERY 50' FOR LINEAR FOOTINGS.
  - -SUBGRADE FOR PARKING, SIDEWALK, BUILDING SLAB AND BUILDING GRAVEL ONE TEST PER 400 SF.
  - -GRAVEL FOR PARKING, BUILDING GRAVEL, SIDEWALK AND BASE UNDER SLAB ONE TEST PER 400 SF.
- 11. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING DETAILED DRAWINGS AND STRUCTURAL CALCULATIONS FOR THE BUILDING AND FOUNDATION. DRAWINGS AND CALCULATIONS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN MONTANA
- 12. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A BUILDING PERMIT FROM THE STATE OF MONTANA. THE COST OF THE PERMIT SHALL BE PAID BY THE CONTRACTOR AND SHALL BE INCLUDED IN THE CONTRACTORS BID.
- 13. PROVIDE ONE FIRE EXTINGUISHER AND CABINET AS SPECIFIED. LOCATION TO BE DETERMINED
- 14. IMPORT BACKFILL MATERIAL CAN BE OBTAINED FROM A STATE OWNED PIT IN NE 1/4 OF SECTION 3, TOWNSHIP 22 NORTH, RANGE 3 WEST. THE MATERIAL IS SIMILAR TO 3" MINUS PIT RUN. ANY EXCESS SPOIL MATERIAL CAN BE DISPOSED OF AT THE PIT.
- 15. SOIL SEPARATION FABRIC SHALL BE NON-WOVEN POLYPROPYLENE GEOTEXTILE THAT IS INERT TO BIOLOGICAL DEGRADATION AND RESISTANT TO NATURALLY OCCURRING CHEMICALS, ALKALIS AND ACIDS. SOIL SEPARATION FABRIC SHALL HAVE AN TENSILE STRENGTH (GRAB) OF 160 LBS AND SHALL BE GEOTEX 601 OR APPROVED EQUAL.

APPROVED BY:

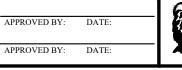


SURFACING SECTIONS



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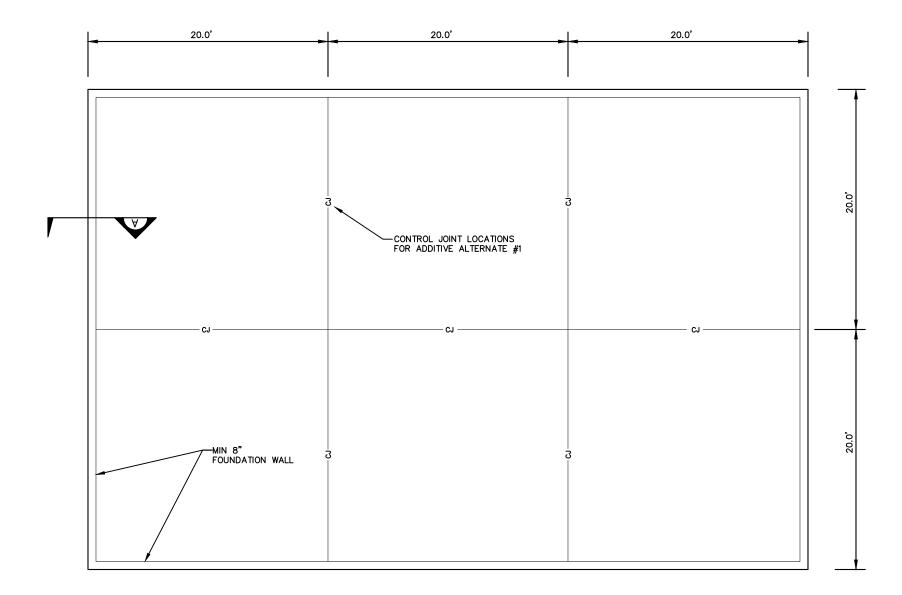










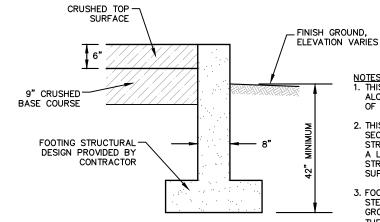


FOUNDATION PLAN SCALE 1/8"= 1'-0"

DATE:

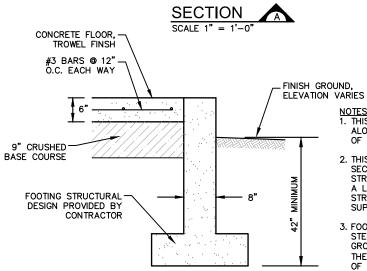
#### FOOTING AND FOUNDATION NOTES:

- 1. THE STRUCTURAL DESIGN OF FOUNDATIONS AND FOOTINGS IS THE RESPONSIBILITY OF THE CONTRACTOR. DETAILS AND CALCULATIONS STAMPED BY A PROFESSIONAL ENGINEER SHALL BE SUBMITTED FOR REVIEW PRIOR TO ORDERING THE BUILDING PACKAGE.
- 2. FOOTINGS AND FOUNDATION ARE TO BE CONCRETE CONSTRUCTION. COLUMNS SHALL NOT EXTEND BELOW FLOOR ELEVATION.
- 3. FOOTINGS SHALL BE DESIGNED TO BE INDEPENDENT OF THE FLOOR SLAB.
- 4. SOIL BEARING CAPACITY FOR FOOTING DESIGN IS 2,000 PSF.
- A MODULUS OF SUBGRADE REACTION, k, OF 150 PSI MAY BE USED FOR THE SLAB DESIGN.



NOTES: 1. THIS DETAIL IS TYPICAL ALONG ALL EDGES
OF THE BUILDING SLAB

- 2. THIS DETAIL IS THE MINIMUM SECTION ALLOWED. IF THE STRUCTURAL DESIGN REQUIRES A LARGER DIMENSIONS, THE STRUCTURAL DESIGN SHALL SUPERCEDED THIS DETAIL.
- 3. FOOTING ELEVATION MAY BE STEPPED TO MATCH FINISH GROUND ELEVATION AROUND THE BUILDING. MAINTAIN 42" OF COVER IN ALL LOCATIONS.



NOTES:
1. THIS DETAIL IS TYPICAL ALONG ALL EDGES OF THE BUILDING SLAB

- 2. THIS DETAIL IS THE MINIMUM SECTION ALLOWED. IF THE STRUCTURAL DESIGN REQUIRES A LARGER DIMENSIONS, THE STRUCTURAL DESIGN SHALL SUPERCEDED THIS DETAIL.
- 3. FOOTING ELEVATION MAY BE STEPPED TO MATCH FINISH GROUND ELEVATION AROUND THE BUILDING. MAINTAIN 42" OF COVER IN ALL LOCATIONS.

SECTION (ADDITIVE ALTERNATE #2) SCALE 1" = 1'-0"

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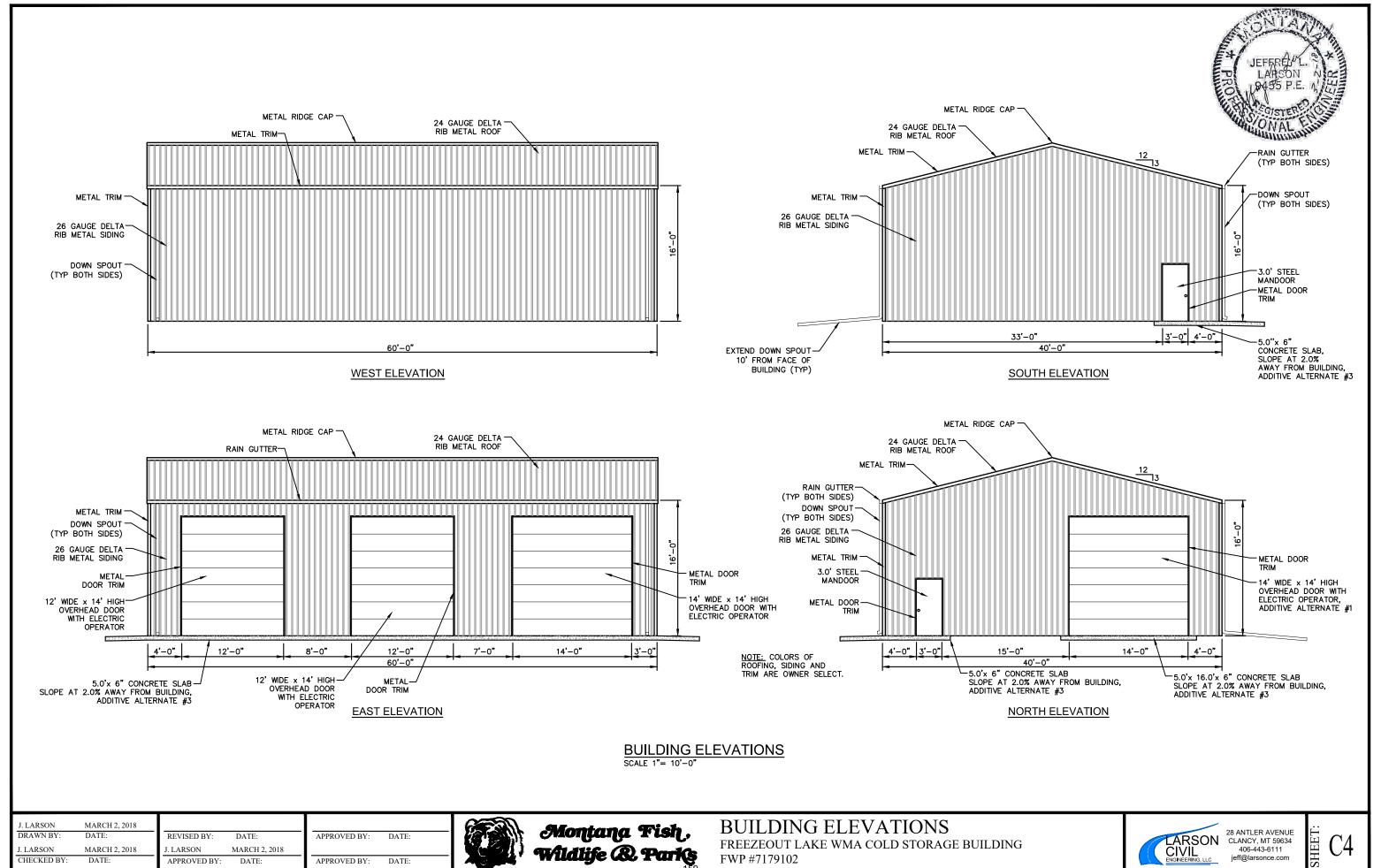
Montana Fish. Wildlife & Parks

**BUILDING FOUNDATION PLAN** FREEZEOUT LAKE WMA COLD STORAGE BUILDING FWP #7179102



406-443-6111

ieff@larsonce.com

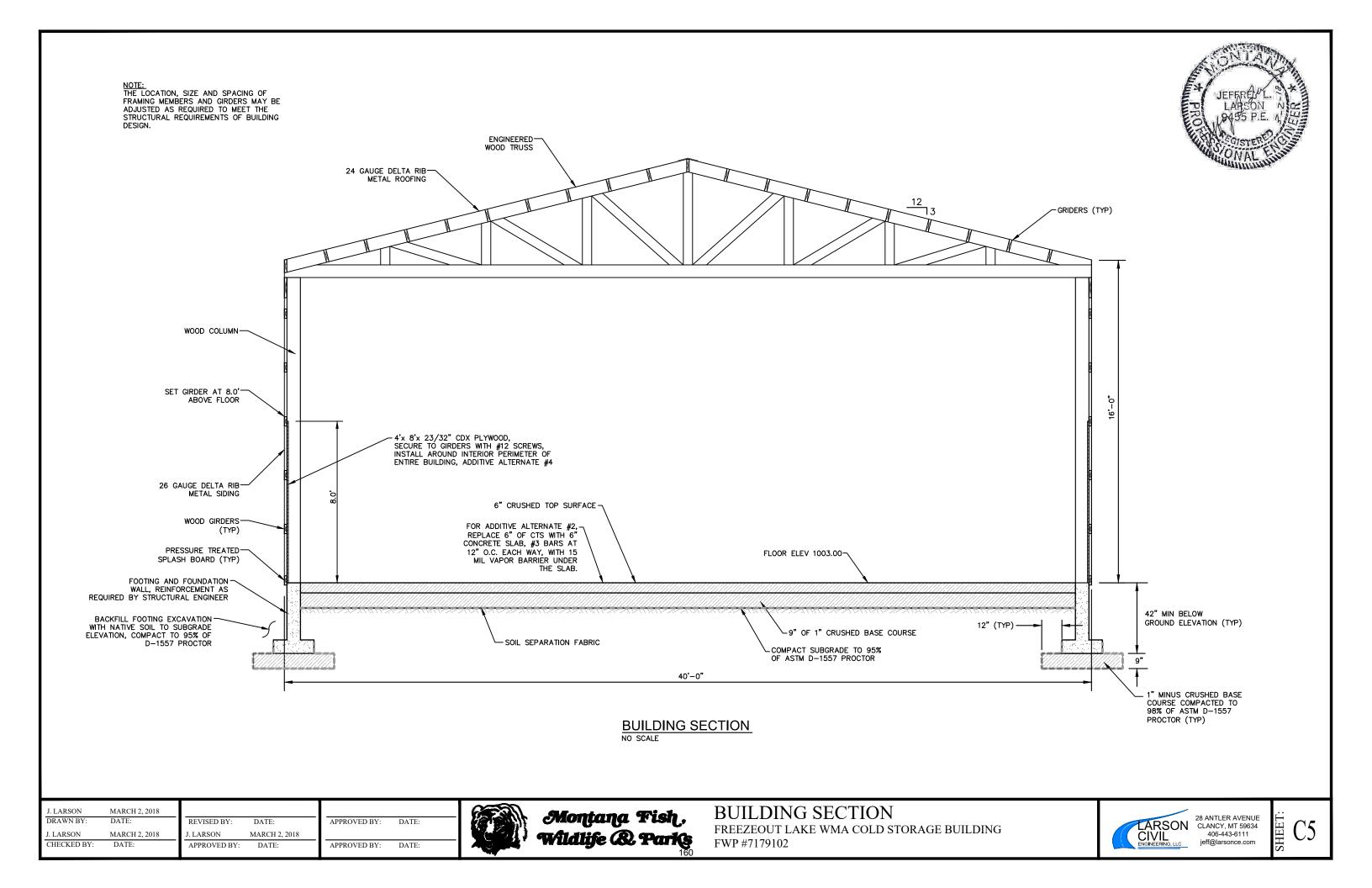


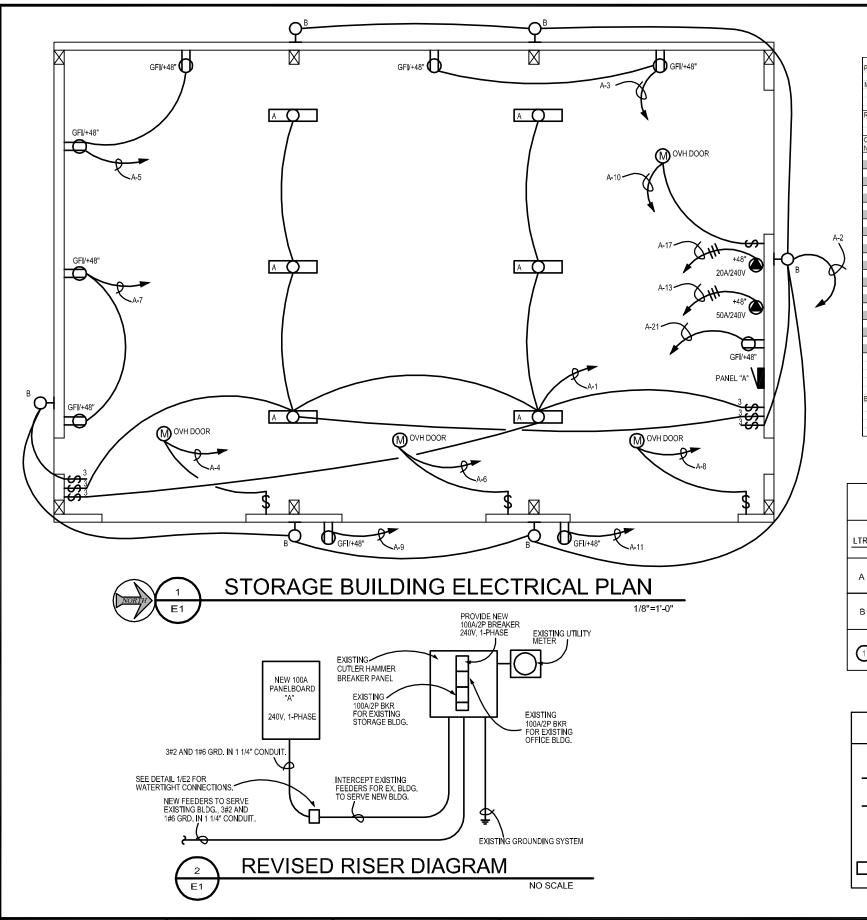
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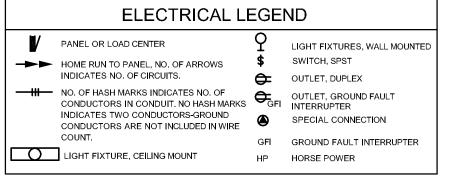
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P ANE L				AMPS L-L V					100A 100A	MOL		SURFA						NOTES	FED F		00A/2P EXISTING		-
		ARE D		L-N V		-			100A	WID		20"	<u>.</u>								ON OFF		_
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REMAR		*ALL C	CIRCI	JIT BRE	RS ONLY, HACR BREAK AKERS SHALL BE RATE	D 10,000	O AIC	AND L	STED F	OR SI	ERIES		ACTURE	R									
				ION WIT	H THE CURRENT LIMITIN	IG MAIN			CIRCU	IT BRE													_
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١٥.		POLE	Т		LOAD DESCRIPTION	REC		HTR	MTR	MISC	L1	L2	REC	LTS	HTR	MTR	MISC	LOAD DESCRIPTION	WIRE	AMP	POLE	Т	NC
1	20	1		#12	LIGHTS		1				270												
											120			1				EXTERIOR LTS	#12	20	1		
3	20	1		#12	RECEPTS	1						360											
												850				1		OVH DOOR	#12	20	1		1
5	20	- 1	G	#12	RECEPTS	1					360												
											850					1		OVH DOOR	#12	20	1		Г
7	20	1		#12	RECEPTS		1					360											
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9	20	1		#12	RECEPTS	1					180					_							
					112021 10						850					1		OVH DOOR	#12	20	1		г
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15	20	1			SPARE													3F ARL		20			-
10	20	_			SPARE					_		_						SP ARE		20	1		
17	20	2		#12	AIR COMP				1		1000							3F ARL		20	_		
- 17	20			#12	AIR COMP				_	_	1000	_						SP ARE		20			
40			-									4000						SPARE		20			-
19									1	_		1000						2227 (2012)					
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21	50	2		#6	EQUIPMENT				1	_	3000												
															_			PROVISION					_
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													RE(		MAIN			KVA	50%		KVA		
															3 HTIN		0.8	KVA	125%		KVA		
BREAK	ERT	YPES										/PHASE		RE	S HE	AT		KVA	125%	0.0	KVA		
N = N											51%	Α		ı	иотог	RS	11.4	KVA	100%	11.4	KVA		
S = S	HUNT-	-TRIP									49%	В	MIS	CEL	LANE	SUC		KVA	25%	0.0	KVA		
G = G	FCI													TOTA	AL DE I	/ AND	LOAD			13.4	KVA		П
															DEL	AMD	AMPS			EE O	AMPS		

	LIGHT FIXTURE SCHEDULE											
LTR.	SYMBOL	_DESCRIPTION_	MANUFACTURER	CATALOG NO.	LOCATION	MOUNTING	LAMPS CAT. NO.	NOTES				
А		1'X4' SURFACE MTD, LENSED GASKETED FIXTURE LED LAMPING	LITHONIA	FEM-L48-6000LM LPACL-MD-40K	CEILING	SURFACE	45W LED	120V				
В	오	EXTERIOR FLOOD LIGHT 2-HEADS WITH PHOTOCELL LED LAMPS	LITHONIA	OFLR-6LC 120-P-BZ	WALL	WALL 8' AFF	20W LED	120V				
	IOTES:											





S. AMES	MAR.	05,	2018
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 S. AMES
 MAR. 05, 2018
 API

 APPROVED BY:
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Montana Fish, Wildlife & Parks ELECTRICAL PLAN
FREEZEOUT LAKE WMA COLD STORAGE BUILDING
FWP #7179102

AMES ENGINEERING, LLC

815 JADE STREET
HELENA, MT 59602
PHONE/FAX: (406) 458-0494
E-MAIL: susanhames@mt.net



## **Electrical Specifications**

Scope: All electrical work under this contract as shown on the plans and indicated in the specifications. Work shall be performed by a licensed and bonded contractor utilizing tradesmen skilled in the art and in accordance with acceptable practices. All work shall comply with local, state, and the National Electrical Code, latest edition.

Permits: The electrical contractor shall secure all permits in connection with his work.

Work Included: All lighting and power systems including fixtures, devices, boxes, conduit, disconnects, motor starters, etc. Provide and install all incidental items required for a complete and functioning system. Service equipment, motors, etc. to be located and installed as shown on the plan. Deviations shall be approved prior to installation by the architect and/or engineer.

Tests: Prior to tests or usage, all switches, panels, devices shall be in place. All branch circuits shall be free of faults or shorts. The complete installation and all components shall have a resistance between conductors and between conductors and ground as specified by the N.E.C.

Ground: There shall be continuity of ground throughout the system. System ground to comply with N.E.C. requirements.

Materials: All materials such as receptacles, switches, conduit, conductors, panelboards, devices, fixtures, etc. to be new and bear the U.L. label or to conform to applicable standards.

Guarantee/Warranty. Contractor guarantees that all work and plant will be free from defects of materials and workmanship for a period of one (1) year from the date of final acceptance. Contractor further agrees that he will replace or repair all defective equipment and installation that become defective during the term of the warranty. This does not include excessive abuse or damage inflected by the owner and/or others.

Manufacturers Directions, Procedures and Operating Instructions: Manufacturers materials, and equipment applied, installed, connected, erected, used, cleaned, and conditioned as per manufacturers directions or recommendations prior to installation. Installation: All equipment, circuitry, etc. shall be installed as follows or as specified otherwise. The electrical contractor shall verify all nameplate ratings of equipment to be connected and verify electrical compatibility and code compliance. Manufacturer's recommendations shall take precedence unless verified otherwise.

Conductors and Cable: All conductors shall be copper with a weather resistant thermoplastic cover. No branch circuit conductors shall be smaller than #12 unless for low voltage wiring.

Motor Circuits: Motors and circuitry to be installed and connected as indicated on the plan. All motors to be provided with a disconnecting means per the N.E.C. If fractional horsepower motors do not have an integral disconnecting means such as a plug or snap switch, electrical contractor to provide and install an acceptable disconnecting means. Equipment connected with flexible conduit with green jacketed ground wire within conduit-to-conduit system or equipment ground. Connect for correct rotation.

Conduits: PVC schedule 40 acceptable where routed underground. If PVC is used, provide ground wire. Compression couplings in wet locations and in concrete walls and floors. Romex and MC cable are not acceptable.

Outlet Boxe

Fixture and Special Purpose 4" x 4" x 2 1/8"

Duplex, Switch and Telephone 3" x 2" x 2 3/4"

Special Purpose Outlet 4" x 4" x 2 1/8"

Wire and Cable: Type THHN or THWN for application or as noted otherwise. Color code in accord with the NEC.

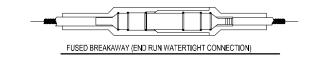
Current Characteristics: 120/240V, 1 phase, 3W

Wiring Devices: Product: Leviton, P&S, Hubbell, and Stater acceptable. Switch and receptacle colors; selected by owner. Devices and finish plates to match in color - no exceptions.

- 1. Standard switches 20 amps, 277 volt with matching smooth plastic plate. Mount 44" to centerline.
- a. 1 pole Single pole toggle, 20A, Model No. CSB1-20
- Duplex outlet Nema standard WD 1 and 6, 20 amps, 125 volts grounded Model No. BR20 complete with smooth matching plate. Mount centerline at 18".
- GFCI receptacle, 20 amp, 125 volt Model number 6899I with matching plate zinc weather resistant cover where indicated W.P.

Equipment Connections: Electrical contractor to coordinate all work where he is responsible for connecting equipment supplied by others. Verify equipment plug configurations and direct connect or install receptacle to match plug. Verify box mounting heights prior to rough in.

Disconnect and Schedule of Control Equipment: Product of General Electric, Square D, Culler Hammer, and Westinghouse acceptable. Model, style, etc. as scheduled. Install fuses for disconnects if required and heaters for motor controllers as recommended by motor equipment supplier. Coordinate controls wiring as indicated on the schedule and make allowances there of.

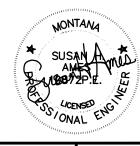


2 2 2

PLUG AND RECEPTACLE SHALL BE HOUSED IN WATER-RESISTANT, SYNTHETIC RUBBER CAPABLE OF BURIAL IN THE GROUND OR INSTALLATION IN SUNLIGHT. EACH HOUSING SHALL PROVIDE A SECTION TO FORM A WATERTIGHT SEAL AROUND THE CABLE AND A SECTION TO PROVIDE A WATER-SEAL BETWEEN THE TWO HOUSINGS AT THE POINT OF DISCONNECTION. EACH KIT SHALL BE SUPPLIED WITH SUFFICIENT SILL COMPOUND TO LUBRICATE METAL PARTS AND THE RUBBER HOUSINGS FOR EASY ASSEMBLY.

WHERE INDICATED A COPPER PIN AND A COPPER RECEPTACLE BOTH OF AT LEAST 90% CONDUCTIVITY SHALL BE CRIMPED TO THE CABLE. THE RECEPTACLE SHALL ESTABLISH CONTACT PRESSURE WITH THE PIN THROUGH THE USE OF A COPPER BERYLLIUM SPRING AND SHALL BE EQUIPPED WITH A DISPOSABLE MOUNTING PIN. THE PIN SHALL BE OF AT LEAST HALF-HARD MATERIAL AND THE CRIMPING PORTION SHALL BE FULLY ANNEALED WHILE THE REST OF THE PIN IS MAINTAINED IN ITS ORIGINAL STATE OF HARDNESS. THE RECEPTACLE SHALL BE FULLY ANNEALED. THE PIN AND RECEPTACLE SHALL LOCK TOGETHER SO THE CONNECTION WILL BE MAINTAINED WHEN A MINIMUM FORCE OF 89 NEWTONS TENSION IS APPLIED TO THE ATTACHED CABLES.





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